



sequence listing US1 Amended GL 17OCT04.txt
SEQUENCE LISTING

<110> Genotherapeutics Inc.

Steiner, Mitchell

Rinaldi, Augustine

Menon, Rema

<120> An isolated nucleic acid encoding P-HYDE
protein and methods of inducing susceptibility to
induction of cell death in cancer

<130> P-2762-US1

<140> US 09/449,817

<141> 1999-11-26

<150> US 09/302,457

<151> 1999-04-29

<160> 7

<170> PatentIn version 3.0

Page 1

sequence listing US1 Amended GL 17OCT04.txt

<210> 1

<211> 733

<212> DNA

<213> human

<400> 1

tacgacttgg tcaacctggc agtcaagcag gtcttggcca acaagagcca
cctctgggtg 60

gaggaggagg tctggcggat ggagatctac ctctccctgg gagtgtgtgc
cctcggcacg 120

ttgtccctgc tggccgtgac ctcaactgccg tccattgcaa actcgtctaa
ctggaggagg 180

ttcagcttcg ttcagtcctc actgggcttt gtggccctcg tgctgagcac
actgcacacg 240

ctcacctacg gctggaccgg cgccttcgaa gagaccgcta caagttctac
ctgcctccca 300

ccttcacgct cacgctgctg gtgccctgcg tcgtcatcct ggccaaagcc
ctgtttctcc 360

tgccctgcat cagccgcaga ctccccagga tccggagaag ctgggagagg
gagagacca 420

tcaagttcac gctgcccaca gaccacgcc tggccgagaa gacgagccac
gtatgagggtg 480

cctgccctgg gctctggacc ccgggcacac gagggacggt gccctgagcc
cgttagggtt 540

sequence listing US1 Amended GL 17OCT04.txt
 tcttttcttg gtggtgcaaa gtggtataac tgtgtgcaaa taggagggtt
 gaggtccaaa 600
 ttcctgggac tcaaattgtat gcatgactat tcagaatgat atacacacat
 atgtgtatat 660
 gtatttacat atattccaca tatataacag gatttgcaat tatacatagc
 tagctaaaaa 720
 aaaaaaaaaa aaa
 733

<210> 2
 <211> 186
 <212> PRT
 <213> Human

<400> 2
 Met Glu Ile Tyr Leu Ser Leu Gly Val Leu Ala Leu Gly
 Thr Leu Ser 5 10
 15
 Leu Leu Ala Val Thr Ser Leu Pro Ser Ile Ala Asn Ser
 Leu Asn Trp 20 25 30
 Arg Glu Phe Ser Phe Val Gln Ser Ser Leu Gly Phe Val
 Ala Leu Val 35 40 45
 Leu Ser Thr Leu His Thr Leu Thr Tyr Gly Trp Thr Arg
 Page 3

55

60

Glu Thr Ala Thr Ser Ser Thr Cys Leu Pro Pro Ser Arg
Ser Arg Cys
65 70 75
80

Trp Cys Pro Ala Ser Ser Ser Trp Pro Lys Pro Cys Phe
Ser Cys Pro 85 90
95

Ala Ser Ala Ala Asp Ser Pro Gly Ser Gly Glu Ala Gly
Arg Gly Arg 100 105
110

Ala Pro Ser Ser Ser Arg Cys Pro Gln Thr Thr Pro Trp
Pro Arg Arg 115 120 125

Arg Ala Thr Tyr Glu Val Pro Ala Leu Gly Ser Gly Pro
Arg Ala His 130 135 140

Glu Gly Arg Cys Pro Glu Pro Val Arg Phe Ser Phe Leu
Gly Gly Ala
145 150 155
160

Lys Trp Tyr Asn Cys Val Gln Ile Gly Gly Leu Arg Ser
Lys Phe Leu
165 170
175

Gly Leu Lys Cys Met His Asp Tyr Ser Glu
180 185

sequence listing US1 Amended GL 17OCT04.txt

<210> 3

<211> 1467

<212> DNA

<213> Rat

<400> 3

atgtccgggg agatggacaa accgctcatc agtcgccgct tggaggacag
tgatggcagt 60

ctggctgagg tccccaagga ggctcccaa gtgggcatcc tgggcagcgg
ggattttgcc 120

cggtccctgg ccacacgcct ggtgggctct ggcttctttg tgggtgtggg
aagccgtaac 180

cccaaacgca ctgccggcct cttccctctc ttagcccaag tgactttcca
ggaggaggcc 240

gtgagctctc cagaggatcat ctttgtggcc gtgttccggg agcactactc
ctcactgtgc 300

agtcttgctg accagttggc tggcaagatc ctagtggatg taagcaaccc
cacggagaag 360

gagcgtcttc agcaccgcca gtcgaacgcc gagtacctgg cctccctctt
ccctgcctgc 420

actgtgggtca aggccttcaa cgtcatctct gcatgggccc tacaggctgg
cccaagggat 480

gggaacaggg aggtgctcat ctgcggtgac cagctggaag ccaagcacac
cgtctcagag 540

atggcgcgcg ccatgggttt caccacctg gacatgggat ccctggcctc
agcgagggag 600

sequence listing US1 Amended GL 17OCT04.txt

```

gtagaggcca tacccctgcg cctccttcca tcctggaagg tgcccaccct
cctggccctg      660
gggctaagca cacaaagcta tgcctacaac ttcattccggg acgttctaca
gccgtacatc      720
cggaagatg agaacaagtt ctacaagatg cccctgtctg tggtaaacac
cacgataccc      780
tgtgtggcct acgtgctgct gtccctgggt tacctgcctg gtgtgctggc
agctgccctt      840
cagctgagga gggggaccaa gtaccagcgc ttcccagact ggctggacca
ttggctgcag      900
caccgcaagc agatcgggct actcagcttt tttttcgcca tgctgcacgc
tctctacagc      960
ttctgcctgc cgctgcgccg ctcccaccgc tatgatctgg tcaacctggc
tgtgaagcag     1020
gtcctggcca acaagagccg cctctggggt gaggaagaag tctggcggat
ggagatatac     1080
ctgtccctgg gtgtgctggc tctgggcatg ctgtcactgc tggcggttac
ctcgatccct     1140
tccattgcaa actcactcaa ctggaaggag ttcagctttg tgcagtccac
gctgggcttc     1200
gtggccctga tgctgagcac aatgcacacc ctacactacg gctggacccg
tgcttttgag     1260
gaaaaccact acaagttcta cctgccaccc acattcacgc tcacgtgct
cctgccctgt     1320
gtcatcatcc tggccaaggg cctcttcctc ctgccctgcc tcagccacag
actcaccaag     1380
atccgcaggg gctgggagag ggatggtgcc gtcaagttca tgctgcccgc

```

sequence listing US1 Amended GL 17OCT04.txt
tggccacaca 1440

cagggggaga aaacaagcca cgtgtga
1467

<210> 4

<211> 17

<212> PRT

<213> Rat

<400> 4

Asn Phe Ile Arg Asp Val Leu Gln Pro Tyr Ile Arg Lys
Asp Glu Asn
1 5 10
15
Lys

<210> 5

<211> 3884

<212> DNA

<213> Rat

<400> 5

gcggccgcca tcatcaataa tataccttat tttggattga agccaatatg
ataatgaggg 60

ggtggagttt gtgacgtggc gcggggcgtg ggaacggggc gggtgacgta

sequence listing US1 Amended GL 17OCT04.txt

```

gtagtgtggc      120
ggaagtgtga tgttgcaagt gtggcggaac acatgtaagc gacggatgtg
gcaaaaagtga      180
cgtttttgggt gtgcgccggt gtacacagga agtgacaatt ttcgcgcggt
tttaggcgga      240
tgttgtagta aatttgggcg taaccgagta agatttggcc attttcgcgg
gaaaactgaa      300
taagaggaag tgaaatctga ataattttgt gttactcata gcgcgtaata
ttgtctagg      360
gccgcgggga ctttgaccgt ttacgtggag actcgcccag ggcgcgcccc
gatgtacggg      420
ccagatatac gcgtatctga ggggactagg gtgtgtttag gcgaaaagcg
gggcttcggt      480
tgtacgcggt taggagtccc ctcaggatat agtagtttcg cttttgcata
gggaggggga      540
aatgtagtct tatgcaatac tctttagtgc ttgcaacatg gtaacgatga
gtagcaaca      600
tgccttacaa ggagagaaaa agcaccgtgc atgccgattg gtggaagtaa
ggtggtacga      660
tcgtgcctta ttaggaaggc aacagacggg tctgacatgg attggacgaa
ccactgaatt      720
ccgcattgca gagatattgt atttaagtgc ctagctcgat acaataaacg
ccatttgacc      780
attcaccaca ttggtgtgca cctccggccc tggccactct cttccgcac
gctgtctgcg      840
ggggccagct gttgggctcg cggttgagga caaactcttc gcggtctttc
cagtactctt      900

```


sequence listing US1 Amended GL 17OCT04.txt

```

ggatcgga aa cccgtcggcc tccgaacggt actccgccgc cgagggacct
gagcgagtcc 960

gcatcgaccg gatcgga aa cctctcgaga aaggcgtgta accagtcaca
gtcgtcttag 1020

aactagtgga tccccgggc tgcaggaatt cgataattcg gcacgaggct
gccgaggcac 1080

tgtgatgtcc ggggagatgg acaaaccgct catcagtcgc cgcttggtgg
acagtgatgg 1140

cagtctggct gaggtcccca aggaggctcc caaagtgggc atcctgggca
gcggggattt 1200

tgcccggtcc ctggccacac gcctgggtggg ctctggcttc tttgtgggtg
tggaagccg 1260

taaccccaaa cgcactgccg gcctcttccc ctcttagcc caagtgactt
tccaggagga 1320

ggccgtgagc tctccagagg tcattttgt ggccgtgttc cgggagcact
actcctcact 1380

gtgcagtctt gctgaccagt tggctggcaa gatcctagtg gatgtaagca
acccacgga 1440

gaaggagcgt ctteagcacc gccagtcgaa cgccgagtac ctggcctccc
tcttccctgc 1500

ctgcactgtg gtcaaggcct tcaacgtcat ctctgcatgg gccctacagg
ctggcccaag 1560

ggatgggaac aggcaggtgc tcattgctgg tgaccagctg gaagccaagc
acaccgtctc 1620

agagatggcg cgcgccatgg gtttcacccc actggacatg ggatccctgg
cctcagcgag 1680

ggaggtagag gccatacccc tgcgcctcct tccatcctgg aagggtccca
ccctcctggc 1740

```

sequence listing US1 Amended GL 17OCT04.txt

```

cctggggcta agcacacaaa gctatgccta caacttcata cgggacgttc
tacagccgta 1800
catccggaaa gatgagaaca agttctacaa gatgcccttg tctgtggtca
acaccacgat 1860
accctgtgtg gcttacgtgc tgctgtccct ggtttacctg cctgggtgtgc
tggcagctgc 1920
ccttcagctg aggaggggga ccaagtacca gcgcttccca gactggctgg
accattggct 1980
gcagaccgc aagcagatcg ggctactcag cttttttttc gccatgctgc
acgctctcta 2040
cagcttctgc ctgccgctgc gccgctccca ccgctatgat ctggtcaacc
tggctgtgaa 2100
gcaggtcctg gccacaaga gccgcctctg ggttgaggaa gaagtctggc
ggatggagat 2160
atacctgtcc ctgggtgtgc tggctctggg catgctgtca ctgctggcgg
ttacctgat 2220
cccttcatt gcaaactcac tcaactggaa ggagttcagc tttgtgcagt
ccacgctggg 2280
cttcgtggcc ctgatgctga gcacaatgca caccctcacc tacggctgga
cccgtgcttt 2340
tgaggaaaac cactacaagt tctacctgcc acccacattc acgctcacgc
tgctcctgcc 2400
ctgtgtcatc atcctggcca agggcctctt cctcctgccc tgcctcagcc
acagactcac 2460
caagatccgc aggggctggg agagggatgg tgccgtcaag ttcatgctgc
ccgctggcca 2520
cacacagggg gagaaaacaa gccacgtgtg aggccctgga aatggagaca

```

sequence listing US1 Amended GL 17OCT04.txt

ggcacagctt 2580

gtggggggccc tgggctgggt tcgggtctct tttctgggat ggtatatgcg
tgggtggccg 2640

aggtctgaat ttctgggatg caggtgtatg ccgagatact cagaatggcg
taccacacat 2700

gcgataagta ctcacatata tttcatatat aataggattt actattattc
ttagttaaaa 2760

aaaaatagtg ggtccttata tttcaactta tgcagggtcc ctatatttca
acttgagcat 2820

ttcagagcaa atgccacaca ttaaacagca gatccccacc ttgtggtagc
tgacagagaca 2880

gacagaaact tctggttatg agagagactg tattttgttg gattctacct
ttaatccccg 2940

ttctctacgt tcccctgtta gccacatctt aacgttggtg cagagctggg
acaagagctg 3000

gctctggtgc agcctcccc atcccagggc taggaaacaa gcctctgatg
aacagaggga 3060

ccaggtcttg accctcctgc tcccgttcc ctgggctcga gtggggaggc
tcagcgggat 3120

cccccgcaat ctgtgcagga gttttcacag gtctgtcctt tcttccggga
gcggtctgaa 3180

gcggcccat ctgattcctag ctgagccgag attgttcccc actccctgaa
agtccagagt 3240

caccgtggag cctgcaaatt gctecttctg cgaagggtg aagtcaccgt
ctcaccagag 3300

ccattaacga acctgatctt cagaagaagc ataattgttt cccctccatt
aagttggtg 3360

sequence listing US1 Amended GL 17OCT04.txt

tgaccctctt taaaccactg tgccttctcg cctttcccat cactaatttg
ggcatctcca 3420

tggagtggac tcttgtcggg gcagttcagg ggggagggaa gcattagaga
ttgcggagaa 3480

taaccatcga agcctccctt ggatgttccc aggcgtgcct tcattaaatt
ggtccctaatt 3540

gagaatgaca ggggacccct gttgcctgta tgcagagaac cagccttctg
agcaccagg 3600

aaacacagtg gccccacgcc cttcaggggg gtcccacgtc ccctttccca
tgcttttgcc 3660

tccttcctc cgggttaca tcaaccataa aagtctgcaa atattgtttt
ttgaattatc 3720

aagcttatcg ataccgtcga aacttgttta ttgcagctta taatggttac
aaataaagca 3780

atagcatcac aaatttcaca aataaagcat ttttttcaact gcattctagt
tgtggtttgt 3840

ccaaactcat caatgtatct tatcatgtct ggatccgacc tcgg
3884

<210> 6

<211> 32166

<212> DNA

<213> Rat

<400> 6

atctggaagg tgctgaggtg cgatgagacc cgcaccaggt gcagaccctg
cgagtgtggc 60

sequence listing US1 Amended GL 17OCT04.txt

```

ggtaaacata ttaggaacca gcctgtgatg ctggatgtga ccgaggagct
gaggcccgat      120
cacttggtgc tggcctgcac ccgcgctgag tttggctcta gcgatgaaga
tacagattga      180
ggtactgaaa tgtgtgggcg tggcctaagg gtgggaaaga atatataagg
tgggggtcct      240
atgtagtttt gtatctgttt tgcagcagcc gccgccgcca tgagcaccaa
ctcgtttgat      300
ggaagcattg tgagctcata ttgacaacg cgcattgcccc catgggcccgg
ggtgcgtcag      360
aatgtgatgg gctccagcat tgatggtcgc cccgtcctgc ccgcaaactc
tactaccttg      420
acctacgaga ccgtgtcttg aacgccgttg gagactgcag cctccgccgc
cgcttcagcc      480
gctgcagcca ccgcccgcgg gattgtgact gactttgctt tcctgagccc
gcttgcaagc      540
agtgcagctt cccgttcata cgcccgcgat gacaagttga cggctctttt
ggcacaattg      600
gattctttga cccgggaact taatgtcgtt tctcagcagc tgttggatct
gcgccagcag      660
gtttctgccc tgaaggcttc ctccccctcc aatgcggttt aaaacataaa
taaaaaacca      720
gactctgttt ggatttgat caagcaagtg tcttgctgtc tttatttagg
ggttttgcgc      780
gcgcggtagg cccgggacca gcggtctcgg tcgttgaggg tcctgtgtat
ttttccagg      840
acgtggtaaa ggtgactctg gatgttcaga tacatgggca taagcccgtc

```

sequence listing US1 Amended GL 17OCT04.txt

tctggggtgg 900

aggtagcacc actgcagagc ttcattgctgc ggggtggtgt tgtagatgat
ccagtcgtag 960

caggagcgct gggcgtggtg cctaaaaatg tctttcagta gcaagctgat
tgccaggggc 1020

aggcccttgg tgtaagtgtt tacaaagcgg ttaagctggg atgggtgcat
acgtggggat 1080

atgagatgca tcttggactg tatttttagg ttggctatgt tcccagccat
atccctccgg 1140

ggattcatgt tgtgcagaac caccagcaca gtgtatccgg tgcacttggg
aaatttgtca 1200

tgtagcttag aaggaaatgc gtggaagaac ttggagacgc ctttgtgacc
tccaagattt 1260

tccatgcatt cgtccataat gatggcaatg ggccacggg cggcggcctg
ggcgaagata 1320

tttctgggat cactaacgtc atagttgtgt tccaggatga gatcgtcata
ggccattttt 1380

acaaagcgcg ggcggagggt gccagactgc ggtataatgg ttccatccgg
cccaggggcg 1440

tagttaccct cacagatttg catttccac gctttgagtt cagatggggg
gatcatgtct 1500

acctgcgggg cgatgaagaa aacggtttcc ggggtagggg agatcagctg
ggaagaaaagc 1560

aggttcctga gcagctgcga cttaccgcag ccggtgggcc cgtaaatcac
acctattacc 1620

gggtgcaact ggtagttaag agagctgcag ctgccgtcat ccctgagcag
gggggccact 1680

```

sequence listing US1 Amended GL 17OCT04.txt
tcgttaagca tgtccctgac tcgcatgttt tccctgacca aatccgccag
aaggcgctcg 1740

ccgcccagcg atagcagttc ttgcaaggaa gcaaagtttt tcaacggttt
gagaccgtcc 1800

gccgtaggca tgcttttgag cgtttgacca agcagttcca ggcgggtcca
cagctcggtc 1860

acctgctcta cggcatctcg atccagcata tctcctcggt tcgcgggttg
gggcggcttt 1920

cgctgtacgg cagtagtcgg tgctcgacca gacgggccag ggtcatgtct
ttcacgggc 1980

gcagggtcct cgtcagcgta gtctgggtca cgggaagggt gtgcgtccg
ggctgcgcgc 2040

tggccagggt gcgcttgagg ctggctctgc tgggtgtgaa gcgctgccgg
tcttcgccct 2100

gcgcgtcggc caggtagcat ttgaccatgg tgtcatagtc cagccccctc
gcggcggtggc 2160

ccttggcgcg cagcttgccc ttggaggagg cgccgcacga ggggcagtgc
agacttttga 2220

gggcgtagag cttgggcgcg agaaataaccg attccgggga gtaggcatcc
gcgccgcagg 2280

ccccgcagac ggtctcgcat tccacgagcc aggtgagctc tggccgttcg
gggtcaaaaa 2340

ccaggtttcc cccatgcttt ttgatgcgtt tcttacctct ggtttccatg
agccggtgtc 2400

cacgctcggg gacgaaaagg ctgtccgtgt ccccgataac agacttgaga
ggcctgtcct 2460

cgagcggtgt tccgcggtcc tcctcgata gaaactcgga ccactctgag
acaaaggctc 2520

```

sequence listing US1 Amended GL 17OCT04.txt

```

gcgtccaggc cagcacgaag gaggctaagt gggaggggta gcggtcgttg
tccactaggg 2580

gggtccactcg ctccagggtg tgaagacaca tgtcgccctc ttcggcatca
aggaagggtga 2640

ttggtttgta ggtgtaggcc acgtgaccgg gtgttcctga aggggggcta
taaaaggggg 2700

tgggggcgcg ttcgtcctca ctctcttcg catcgctgtc tgcgagggcc
agctgttggg 2760

gtgagtactc cctctgaaaa gcgggcatga cttctgcgct aagattgtca
gtttccaaaa 2820

acgaggagga tttgatattc acctggcccg cggtgatgcc tttgagggtg
gccgcatcca 2880

tctggtcaga aaagacaatc tttttgttgt caagcttggg ggcaaacgac
ccgtagaggg 2940

cgttggacag caacttggcg atggagcgca gggtttggtt tttgtcgca
tcggcgcgct 3000

ccttggccgc gatgtttagc tgcacgtatt cgcgcgcaac gcaccgccat
tcgggaaaga 3060

cggtggtgcg ctctcgggc accaggtgca cgcgccaacc gcggttggtc
agggtgacaa 3120

ggtcaacgct ggtggctacc tctccgcgta ggcgctcggt ggtccagcag
aggcgccgc 3180

ccttgcgcga gcagaatggc ggtagggggt ctagctgcgt ctctccggg
gggtctgcgt 3240

ccacggtaaa gaccccgggc agcaggcgcg cgtcgaagta gtctatcttg
catccttgca 3300

agtctagcgc ctgctgccat gcgcgggcgg caagcgcgcg ctctatggg

```



```

sequence listing US1 Amended GL 17OCT04.txt
ttgagtgggg 3360
gaccccatgg catggggtgg gtgagcgcg aggcgtagat gccgcaaagt
tcgtaaacgt 3420
agaggggctc tctgagtatt ccaagatatg tagggtagca tcttccaccg
cggatgctgg 3480
cgcgcacgta atcgtatagt tcgtgcgagg gagcgaggag gtcgggaccg
aggttgctac 3540
gggcgggctg ctctgctcgg aagactatct gcctgaagat ggcattgtgag
ttggatgata 3600
tggttggacg ctggaagacg ttgaagctgg cgtctgtgag acctaccgag
tcacgcacga 3660
aggaggcgta ggagtcgagc agcttggtga ccagctcggc ggtgacctgc
acgtctaggg 3720
cgagtagtgc cagggtttcc ttgatgatgt catacttatt ctgtcccttt
ttttccaca 3780
gctcgcggtt gaggacaaac tcttcgaggc ctttccagta ctcttgatc
ggaaacccgt 3840
cggcctccga acggttaagag cctagcatgt agaactgggt gacggcctgg
taggcgcagc 3900
atcccttttc tacgggttagc gcgtatgcct gcgcggcctt ccggagcgag
gtgtgggtga 3960
gcgcaaaggt gtccctgacc atgactttga ggtactggta tttgaagtca
gtgtcgtcgc 4020
atccgccctg ctcccagagc aaaaagtccg tgcgcttttt ggaacgcgga
tttggcaggg 4080
cgaaggtgac atcgttgaag agtatctttc ccgcgcgagg cataaagttg
cgtgtgatgc 4140

```

sequence listing US1 Amended GL 17OCT04.txt

ggaaggggtcc cggcacctcg gaacggttgt taattacctg ggcggcgagc
acgatctcgt 4200

caaagccggtt gatgtttgtgg cccacaatgt aaagttccaa gaagcgcggg
atgcccttga 4260

tggaaggcaa ttttttaagt tcctcgtagg tgagctcttc aggggagctg
agcccgtgct 4320

ctgaaagggc ccagtctgca agatgagggt tggaagcgac gaatgagctc
cacaggtcac 4380

gggccattag catttgcagg tggtcgcaa aggtcctaaa ctggcgacct
atggccattt 4440

tttctggggt gatgcagtag aaggtaagcg ggtcttggtc ccagcgggtc
catccaaggt 4500

tcgcggttag gtctcgcgcg gcagtcacta gaggctcatc tccgccgaac
ttcatgacca 4560

gcatgaaggg cagcagctgc ttcccaaagg ccccatcca agtataggtc
tctacatcgt 4620

aggtgacaaa gagacgctcg gtgcgaggat gcgagccgat cgggaagaac
tggatctccc 4680

gccaccaatt ggaggagtgg ctattgatgt ggtgaaagta gaagtccttg
cgacgggccg 4740

aacactcgtg ctggcttttg taaaaacgtg cgcagtactg gcagcgggtg
acgggctgta 4800

catcctgcac gaggttgacc tgacgaccgc gcacaaggaa gcagagtggg
aatttgagcc 4860

cctcgcttgg cgggtttggc tgggtggtctt ctacttcggc tgcttgcct
tgaccgtctg 4920

gctgctcgag gggagttacg gtggatcgga ccaccacgcc gcgcgagccc
aaagtccaga 4980

sequence listing US1 Amended GL 17OCT04.txt

```

tgtccgcgcg cggcggtcgg agcttgatga caacatcgcg cagatgggag
ctgtccatgg 5040
tctggagctc ccgcggcgtc aggtcaggcg ggagctcctg caggtttacc
tcgcatagac 5100
gggtcagggc gcgggctaga tccaggtgat acctaatttc caggggctgg
ttggtggcgg 5160
cgtcgatggc ttgcaagagg ccgcatcccc gcggcgcgac tacggtaccg
cgcggcgggc 5220
ggtgggcccgc ggggggtgtcc ttggatgatg catctaaaag cggtgacgcg
ggcgagcccc 5280
cggaggtagg gggggctccg gacccgccgg gagagggggc aggggcacgt
cggcgccgcg 5340
cgcgggcagg agctggtgct gcgcgcgtag gttgctggcg aacgcgacga
cgcggcgggt 5400
gatctcctga atctggcgcc tctgcgtgaa gacgacgggc ccggtgagct
tgagcctgaa 5460
agagagttcg acagaatcaa tttcgggtgc gttgacggcg gcctggcgca
aaatctcctg 5520
cacgtctcct gagttgtctt gataggcgat ctcggccatg aactgctcga
tctcttcctc 5580
ctggagatct ccgcgtccgg ctcgctccac ggtggcggcg aggtcgttgg
aaatgcgggc 5640
catgagctgc gagaaggcgt tgaggcctcc ctcgttccag acgcggctgt
agaccacgcc 5700
cccttcggca tcgcgggcgc gcatgaccac ctgcgcgaga ttgagctcca
cgtgccgggc 5760
gaagacggcg tagtttcgca ggcgctgaaa gaggtagtgt aggggtggtg

```

sequence listing US1 Amended GL 17OCT04.txt

cgggtgtgttc 5820
 tgccacgaag aagtacataa cccagcgtcg caacgtggat tcgttgatat
 cccccaaggc 5880
 ctcaaggcgc tccatggcct cgtagaagtc cacggcgaag ttgaaaaact
 gggagttgcg 5940
 cgccgacacg gttaactcct cctccagaag acggatgagc tcggcgacag
 tgtcgcgcac 6000
 ctcgcgctca aaggctacag gggcctcttc ttcttcttca atctcctctt
 ccataagggc 6060
 ctcccccttc tcttcttctg gcggcggtgg gggagggggg acacggcggc
 gacgacggcg 6120
 caccgggagg cggtcgacaa agcgtctgat catctccccg cggcgacggc
 gcatggcttc 6180
 ggtgacggcg cggccgttct cgcgggggcg cagttggaag acgccgcccg
 tcatgtcccc 6240
 gttatgggtt ggcggggggc tgccatgcgg cagggatacg gcgctaacga
 tgcattctca 6300
 caattgttgt gtaggtactc cgccgccgag ggacctgagc gagtccgcat
 cgaccggaac 6360
 ggaaaacctc tcgagaaagg cgtctaacca gtcacagtcg caaggtaggc
 tgagcaccgt 6420
 ggcggggcgc agcggggcgc ggtcgggggt gtttctggcg gaggtgctgc
 tgatgatgta 6480
 attaaagtag gcggtcttga gacggcggat ggtcgacaga agcaccatgt
 ccttgggtcc 6540
 ggcctgctga atgcgcaggc ggtcggccat gccccaggct tcgttttgac
 atcggcgcag 6600

sequence listing US1 Amended GL 17OCT04.txt

```

gtctttgtag tagtcttgca tgagccttc taccggcact tcttcttctc
cttcctcttg      6660

tcctgcatct cttgcatcta tcgctgcggc ggcggcggag tttggccgta
ggtggcgccc      6720

tcttcctccc atgctgtgta ccccgaagcc cctcatcggc tgaagcaggg
ctaggtcggc      6780

gacaacgcgc tcggctaata tggcctgctg cacctgcgtg agggtagact
ggaagtcatc      6840

catgtccaca aagcgggtgt atgcgcccgt gttgatggtg taagtgcagt
tggccataac      6900

ggaccagtta acggtctggt gacccggctg cgagagctcg gtgtacctga
gacgcgagta      6960

agccctcgag tcaaatacgt agtcgttgca agtccgcacc aggtactggt
atcccaccaa      7020

aaagtgcggc ggcggtctggc ggtagagggg ccagcgtagg gtggccgggg
ctccgggggg      7080

gagatcttcc aacataaggc gatgatatcc gtagatgtac ctggacatcc
agtgatgcc      7140

ggcggcgggt gtggaggcgc gcggaaagtc gcggacgcgg ttccagatgt
tgcgagcgg      7200

caaaaagtgc tccatggtcg ggacgctctg gccggtcagg cgcgcgcaat
cgttgacgct      7260

ctaccgtgca aaaggagagc ctgtaagcgg gcactcttcc gtggtctggt
ggataaattc      7320

gcaagggtat catggcggac gaccgggggt cgagccccgt atccggccgt
ccgccgtgat      7380

ccatgcgggt accgcccgcg tgtcgaacct aggtgtgcga cgtcagacaa
cgggggagtg      7440

```

sequence listing US1 Amended GL 17OCT04.txt

```

ctccttttgg cttccttcca ggcgcggcgg ctgctgcgct agcttttttg
gccactggcc 7500

gcgcgcagcg taagcgggta ggctggaaa cgaaagcatt aagtggctcg
ctccctgtag 7560

ccggagggggt attttccaag ggttgagtcg cgggaccccc ggttcgagtc
tcggaccggc 7620

cggactgcgg cgaacggggg tttgcctccc cgatcatgcaa gaccccgctt
gcaaattcct 7680

ccggaaacag ggacgagccc cttttttgct tttcccagat gcatccggtg
ctgcgcgaga 7740

tgcgcccccc tcctcagcag cggcaagagc aagagcagcg gcagacatgc
agggcaccct 7800

cccctcctcc taccgcgtca ggagggggcga catccgcggt tgacgcggca
gcagatggtg 7860

attacgaacc cccgcggcgc cgggccccggc actacctgga cttggaggag
ggcgagggcc 7920

tggcgcggtt aggagcggcc tctcctgagc ggtacccaag ggtgcagctg
aagcgtgata 7980

cgcgtgaggg gtacgtgccg cggcagaacc tgtttcgcga ccgcgagggg
gaggagcccc 8040

aggagatgcg ggatcgaaag ttccacgcag ggcgcgagct gcggcatggc
ctgaatcgcg 8100

agcggttgct gcgcgaggag gactttgagc ccgacgcgcg aaccgggatt
agtcccgcgc 8160

gcgcacacgt ggcggccgcc gacctggtaa ccgcatacga gcagacggtg
aaccaggaga 8220

ttaactttca aaaaagcttt aacaaccacg tgcgtacgct tgtggcgcg

```

```

sequence listing US1 Amended GL 17OCT04.txt
gaggaggtgg      8280
ctataggact gatgcatctg tgggactttg taagcgcgct ggagcaaac
ccaaatagca      8340
agccgctcat ggcgcagctg ttccttatag tgcagcacag cagggacaac
gaggcattca      8400
gggatgcgct gctaaacata gtagagcccg agggccgctg gctgctcgat
ttgataaaca      8460
tcctgcagag catagtggcg caggagcgca gcttgagcct ggctgacaag
gtggccgcca      8520
tcaactattc catgcttagc ctgggcaagt tttacgcccg caagatatac
catacccctt      8580
acgttcccat agacaaggag gtaaagatcg aggggttcta catgcgcatg
gcgctgaagg      8640
tgcttacctt gagcgacgac ctgggcgttt atcgcaacga gcgcatccac
aaggccgtga      8700
gcgtgagccg gcggcgcgag ctcagcgacc gcgagctgat gcacagcctg
caaagggcc      8760
tggctggcac gggcagcggc gatagagagg ccgagtccta ctttgacgcg
ggcgtgacc      8820
tgcgctgggc cccaagccga cgcgccctgg aggcagctgg ggccggacct
gggctggcgg      8880
tggcaccgcg gcgcgctggc aacgtcggcg gcgtggagga atatgacgag
gacgatgagt      8940
acgagccaga ggacggcgag tactaagcgg tgatgtttct gatcagatga
tgcaagacgc      9000
aacggacccg gcggtgcggg cggcgctgca gagccagccg tccggcctta
actccacgga      9060

```

sequence listing US1 Amended GL 17OCT04.txt

cgactggcgc caggtcatgg accgcatcat gtcgctgact gcgcgcaatc
ctgacgcgtt 9120

ccggcagcag ccgcaggcca accggctctc cgcaattctg gaagcggtagg
tcccggcgcg 9180

cgcaaacccc acgcacgaga aggtgctggc gatcgtaaac gcgctggccg
aaaacagggc 9240

catccggccc gacgaggccg gcctgggtcta cgacgcgctg cttcagcgcg
tggctcggtta 9300

caacagcggc aacgtgcaga ccaacctgga ccggctgggtg ggggatgtgc
gcgaggccgt 9360

ggcgagcgt gagcgcgcg agcagcaggg caacctgggc tccatggttg
cactaaacgc 9420

cttcctgagt acacagcccg ccaacgtgcc gcggggacag gaggactaca
ccaactttgt 9480

gagcgactg cggctaattg tgactgagac accgcaaagt gaggtgtacc
agtctgggccc 9540

agactatttt ttccagacca gtagacaagg cctgcagacc gtaaacctga
gccaggcttt 9600

caaaaacttg caggggctgt ggggggtgcg ggctcccaca ggcgaccgcg
cgaccgtgtc 9660

tagcttgctg acgcccact cgcgctgtt gctgctgcta atagcgccct
tcacggacag 9720

tggcagcgtg tcccgggaca catacctagg tcaattgctg acactgtacc
gcgaggccat 9780

aggtcaggcg catgtggacg agcatacttt ccaggagatt acaagtgtca
gccgcgcgt 9840

ggggcaggag gacacgggca gcctggaggc aaccctaaac tacctgctga
ccaaccggcg 9900

sequence listing US1 Amended GL 17OCT04.txt

gcagaagatc ccctcgttgc acagtttaaa cagcgaggag gagcgcatTT
 tgcgctacgt 9960

gcagcagagc gtgagcctta acctgatgCG cgacggggta acgcccagCG
 tggcgctgga 10020

catgaccgCG cgcaacatgg aaccgggcat gtatgcctca aaccggccgt
 ttatcaaccg 10080

cctaattggac tacttgcatac gcgCGggccgc cgtgaacccc gagtatttca
 ccaatgccat 10140

cttgaacccg cactggctac cgccccctgg tttctacacc gggggattCG
 agtgccccga 10200

gggtaacgat ggattcctct gggacgacat agacgacagc gtgttttccc
 cgcaaccgca 10260

gaccttgcta gagttgcaac agcgcgagca ggcagaggCG gcgctgcgaa
 aggaaagctt 10320

ccgcaggcca agcagcttgt ccgatctagg cgctgcggcc ccgcggtcag
 atgctagtag 10380

cccatttcca agcttgatag ggtctcttac cagcactcgc accaccgccc
 cgcgctgct 10440

gggCGaggag gagtaccta acaactcgtc gctgcagccg cagcgcgaaa
 aaaacctgcc 10500

tccggcattt cccaacaacg ggatagagag cctagtggac aagatgagta
 gatggaagac 10560

gtacgcgCag gagcacaggg acgtgccagg cccgcgcccc cccaccgctc
 gtcaaaggca 10620

cgaccgtcag cgggggtctgg tgtgggagga cgatgactCG gcagacgaca
 gCagcgtcct 10680

ggattttggga gggagtggca acccgtttgc gcaccttcgc cccaggctgg

sequence listing US1 Amended GL 17OCT04.txt

ggagaatggt 10740

ttaaaaaaaaaaa aaaagcatga tgcaaaataa aaaactcacc aaggccatgg
caccgagcgt 10800

tggttttctt gtattcccct tagtatgcgg cgcgcggcga tgtatgagga
aggtcctcct 10860

ccctcctacg agagtgtggt gagcgcggcg ccagtggcgg cggcgctggg
ttctcccttc 10920

gatgctcccc tggaccgcgc gtttgtgcct ccgcggtacc tgcggcctac
cggggggaga 10980

aacagcatcc gttactctga gttggcacc ctattcgaca ccaccggtg
gtacctgggtg 11040

gacaacaagt caacggatgt ggcattccctg aactaccaga acgaccacag
caactttctg 11100

accacggtca ttcaaaacaa tgactacagc ccggggggagg caagcacaca
gaccatcaat 11160

cttgacgacc ggtcgcactg gggcggcgac ctgaaaacca tcctgcatac
caacatgcca 11220

aatgtgaacg agttcatggt taccaataag ttttaaggcgc gggatgatgt
gtcgcgcttg 11280

cctactaagg acaatcaggt ggagctgaaa tacgagtggg tggagttcac
gctgcccag 11340

ggcaactact ccgagaccat gaccatagac cttatgaaca acgcgatcgt
ggagcactac 11400

ttgaaagtgg gcagacagaa cgggggttctg gaaagcgaca tcggggtaaa
gtttgacacc 11460

cgcaacttca gactggggtt tgaccccgtc actggtcttg tcatgcctgg
ggtatataca 11520

sequence listing US1 Amended GL 17OCT04.txt

aacgaagcct tccatccaga catcattttg ctgccaggat gcggggtgga
cttcacccac 11580

agccgcctga gcaacttggt gggcatccgc aagcggcaac ccttccagga
gggcttttagg 11640

atcacctacg atgatctgga gggtggtaac attcccgcac tgttgatgt
ggacgcctac 11700

caggcgagct tgaaagatga caccgaacag ggcgggggtg gcgcaggcgg
cagcaacagc 11760

agtggcagcg gcgcggaaga gaactccaac gcggcagccg cggcaatgca
gccggtggag 11820

gacatgaacg atcatgccat tcgcggcgac acctttgcca cacgggctga
ggagaagcgc 11880

gctgaggccg aagcagcggc cgaagctgcc gccccgctg cgcaaccgga
ggtcgagaag 11940

cctcagaaga aaccggtgat caaaccctg acagaggaca gcaagaaacg
cagttacaac 12000

ctaataagca atgacagcac cttcacccag taccgcagct ggtaccttgc
atacaactac 12060

ggcgaccctc agaccggaat ccgctcatgg accctgcttt gcactcctga
cgtaacctgc 12120

ggctcggagc aggtctactg gtcgttgcca gacatgatgc aagaccccg
gaccttccgc 12180

tccacgcgcc agatcagcaa ctttccggtg gtgggcgccg agctgttgcc
cgtgcactcc 12240

aagagcttct acaacgacca ggccgtctac tcccaactca tccgccagtt
tacctctctg 12300

acccacgtgt tcaatcgctt tcccgagaac cagattttgg cgcgcccccc
agccccacc 12360

sequence listing US1 Amended GL 17OCT04.txt

atcaccaccg tcagtgaaaa cgttcctgct ctcacagatc acgggacgct
accgctgcgc 12420

aacagcatcg gaggagtcca gcgagtgacc attactgacg ccagacgccg
caccgcccc 12480

tacgtttaca aggccctggg catagtctcg ccgcgcgtcc tatcgagccg
cacittttga 12540

gcaagcatgt ccatccttat atcgcccagc aataacacag gctggggcct
gcgcttccca 12600

agcaagatgt ttggcggggc caagaagcgc tccgaccaac acccagtgcg
cgtgcgcggg 12660

cactaccgcg cgccctgggg cgcgcacaaa cgcgcccgca ctgggcgcac
caccgtcgat 12720

gacgccatcg acgcggtggt ggaggaggcg cgcaactaca cgcccacgcc
gccaccagtg 12780

tccacagtgg acgcggccat tcagaccgtg gtgcgcggag cccggcgcta
tgtaaaatg 12840

aagagacggc ggaggcgcgt agcacgtcgc caccgccgcc gacccggcac
tgccgcccc 12900

cgcgcgccgg cgccctgct taaccgcgca cgtcgcaccg gccgacgggc
ggccatgcgg 12960

gccgctcgaa ggctggccgc gggattgtc actgtgcccc ccagggtccag
gcgacgagcg 13020

gccgcgcgag cagccgcggc cattagtgt atgactcagg gtcgcagggg
caacgtgtat 13080

tgggtgcgcg actcggttag cggcctgcgc gtgcccgtgc gcacccgccc
cccgcgcaac 13140

tagattgcaa gaaaaaacta cttagactcg tactgttgta tgtatccagc

```

sequence listing US1 Amended GL 17OCT04.txt
ggcggcggcg 13200
cgcaacgaag ctatgtccaa gcgcaaaatc aaagaagaga tgctccaggt
catcgcgccg 13260
gagatctatg gccccccgaa gaaggaagag caggattaca agccccgaaa
gctaaagcgg 13320
gtcaaaaaga aaaagaaaga tgatgatgat gaacttgacg acgaggtgga
actgctgcac 13380
gctaccgcgc ccaggcgacg ggtacagtgg aaaggtcgac gcgtaaaacg
tgttttgcga 13440
cccggcacca ccgtagtctt tacgcccggg gagcgctcca cccgcaccta
caagcgcggtg 13500
tatgatgagg tgtacggcga cgaggacctg cttgagcagg ccaacgagcg
cctcggggag 13560
tttgccctacg gaaagcggca taaggacatg ctggcgttgc cgctggacga
gggcaaccca 13620
acacctagcc taaagcccgt aacctgcag cagggtgctgc ccgcgcttgc
accgtccgaa 13680
gaaaagcgcg gcctaaagcg cgagtctggt gacttggcac ccaccgtgca
gctgatggta 13740
cccaagcgcc agcgactgga agatgtcttg gaaaaaatga ccgtggaacc
tgggctggag 13800
cccgagggtcc gcgtgcggcc aatcaagcag gtggcgccgg gactgggctg
gcagaccgtg 13860
gacgttcaga taccactac cagtagcacc agtattgcca ccgccacaga
gggcatggag 13920
acacaaacgt ccccggttgc ctcagcggtg gcggatgccg cgggtgcaggc
ggtcgctgcg 13980

```

sequence listing US1 Amended GL 17OCT04.txt

gccgcgtcca agacctctac ggaggtgcaa acggaccggt ggatgtttcg
cgtttcagcc 14040

ccccggcgcc cgcgcggttc gaggaagtac ggcgccgcca gcgcgctact
gcccgaatat 14100

gccctacatc cttccattgc gcctaccccc ggctatcgtg gctacaccta
ccgccccaga 14160

agacgagcaa ctacccgacg ccgaaccacc actggaaccc gccgccgccc
tcgccgctgc 14220

cagcccgtgc tggccccgat ttccgtgcgc agggtggttc gcgaaggagg
caggaccctg 14280

gtgctgcca cagcgcgcta ccaccccagc atcgtttaaa agccggtctt
tgtggttctt 14340

gcagatatgg ccctcacctg ccgcctccgt ttcccgggtgc cgggattccg
aggaagaatg 14400

caccgtagga ggggcatggc cggccacggc ctgacgggcg gcatgcgtcg
tgcgaccac 14460

cggcggcgcc gcgcgtcgca ccgtcgcgtg cgcggcggtg tcctgcccct
ccttattcca 14520

ctgatcgccg cggcgattgg cggcgtgccc ggaattgcat ccgtggcctt
gcaggcgag 14580

agacactgat taaaaacaag ttgcatgtgg aaaaatcaaa ataaaaagtc
tggactctca 14640

cgctcgcttg gtcctgtaac tattttgtag aatggaagac atcaactttg
cgtctctggc 14700

cccgcgacac ggctcgcgcc cgttcatggg aaactggcaa gatatcgcca
ccagcaatat 14760

gagcgggtggc gccttcagct ggggctcgtg gtggagcggc attaaaaatt
tcggttccac 14820

sequence listing US1 Amended GL 17OCT04.txt

cgttaagaac tatggcagca aggcctggaa cagcagcaca ggccagatgc
tgagggataa 14880

gttgaaagag caaaatttcc aacaaaaggt ggtagatggc ctggcctctg
gcatttagcg 14940

ggtggtggac ctggccaacc aggcagtgca aaataagatt aacagtaagc
ttgatccccg 15000

ccctcccgtg gaggagcctc caccggccgt ggagacagtg tctccagagg
ggcgtggcga 15060

aaagcgtccg cgccccgaca gggaagaaac tctggtgacg caaatagacg
agcctccctc 15120

gtacgaggag gcactaaagc aaggcctgcc caccaccgtg cccatcgcg
ccatggctac 15180

cggagtgtg ggccagcaca caccgtaac gctggacctg cttcccccg
ccgacaccca 15240

gcagaaacct gtgctgccag gcccgaccgc cgttggtgta acccgtccta
gccgcgcgtc 15300

cctgcgccgc gccgcccagc gtccgcgacg gttgcggccc gtagccagt
gcaactggca 15360

aagcacactg aacagcatcg tgggtctggg ggtgcaatcc ctgaagcgcc
gacgatgctt 15420

ctgaatagct aacgtgtcgt atgtgtgtca tgtatgcgtc catgtcgccg
ccagaggagc 15480

tgctgagccg ccgcgcgccc gctttccaag atggctaccc cttcgatgat
gccgcagtgg 15540

tcttacatgc acatctcggg ccaggacgcc tcggagtacc tgagccccgg
gctggtgcag 15600

tttccccg cgccaggagac gtacttcagc ctgaataaca agtttagaaa

sequence listing US1 Amended GL 17OCT04.txt

ccccacggtg 15660

gcgcctacgc acgacgtgac cacagaccgg tcccagcggt tgacgctgcg
gttcatccct 15720

gtggaccgtg aggatactgc gtactcgtac aaggcgcggt tcaccctagc
tgtgggtgat 15780

aaccgtgtgc tggacatggc ttccacgtac tttgacatcc gcggcggtgct
ggacaggggc 15840

cctactttta agccctactc tggcactgcc tacaacgccc tggctcccaa
gggtgcccc 15900

aatccttgcg aatgggatga agctgctact gctcttgaaa taaacctaga
agaagaggac 15960

gatgacaacg aagacgaagt agacgagcaa gctgagcagc aaaaaactca
cgtatttggg 16020

caggcgcttt attctggtat aaatattaca aaggagggta ttcaaatagg
tgtcgaagg 16080

caaacaccta aatatgccga taaaacattt caacctgaac ctcaaatagg
agaatctcag 16140

tggtagcaaa ctgaaattaa tcatgcagct gggagagtcc ttaaaaagac
taccccaatg 16200

aaaccatggt acggttcata tgcaaaaccc acaaatgaaa atggagggca
aggcattctt 16260

gtaaagcaac aaaatggaaa gctagaaagt caagtggaaa tgcaattttt
ctcaactact 16320

gaggcgaccg caggcaatgg tgataacttg actcctaaag tggatttgta
cagtgaagat 16380

gtagatatag aaacccaga cactcatatt tcttacatgc ccactattaa
ggaaggtaac 16440

sequence listing US1 Amended GL 17OCT04.txt

tcacgagaac taatgggcca acaatctatg cccaacaggc ctaattacat
tgcttttagg 16500

gacaatttta ttggtctaata gtattacaac agcacgggta atatgggtgt
tctggcgggc 16560

caagcatcgc agttgaatgc tgtttagat ttgcaagaca gaaacacaga
gctttcatac 16620

cagcttttgc ttgattccat tggatgata accaggtact tttctatgtg
gaatcaggct 16680

gttgacagct atgatccaga tgttagaatt attgaaaatc atggaactga
agatgaactt 16740

ccaaattact gctttccact gggagggtgtg attaatacag agactcttac
caaggtaaaa 16800

cctaaaacag gtcaggaaaa tggatgggaa aaagatgcta cagaattttc
agataaaaaat 16860

gaaataagag ttggaaataa ttttgccatg gaaatcaatc taaatgcca
cctgtggaga 16920

aatttcctgt actccaacat agcgtgtat ttgcccgcaca agctaaagta
cagtccttcc 16980

aacgtaaaaa tttctgataa cccaaacacc tacgactaca tgaacaagcg
agtgggtggc 17040

cccggggttag tggactgcta cattaacctt ggagcacgct ggtcccttga
ctatatggac 17100

aacgtcaacc catttaacca ccaccgcaat gctggcctgc gctaccgctc
aatggtgctg 17160

ggcaatggtc gctatgtgcc cttccacatc cagggtgcctc agaagttctt
tgccattaaa 17220

aacctccttc tcctgccggg ctcatacacc tacgagtgga acttcaggaa
ggatgttaac 17280

sequence listing US1 Amended GL 17OCT04.txt

atggttctgc agagctccct aggaaatgac ctaagggttg acggagccag
cattaagttt 17340

gatagcattt gcctttacgc caccttcttc cccatggccc acaacaccgc
ctccacgctt 17400

gaggccatgc ttagaaacga caccaacgac cagtccttta acgactatct
ctccgcccgc 17460

aacatgctct accctatacc cgccaacgct accaacgtgc ccatatccat
cccctcccgc 17520

aactggggcgg ctttccgcgg ctgggccttc acgcgctta agactaagga
aaccatca 17580

ctgggctcgg gctacgacc ttattacacc tactctggct ctatacccta
cctagatgga 17640

accttttacc tcaaccacac ctttaagaag gtggccatta cctttgactc
ttctgtcagc 17700

tggcctggca atgaccgcct gcttaccccc aacgagtttg aaattaagcg
ctcagttgac 17760

ggggagggtt acaacgttgc ccagtgtaac atgaccaaag actggttcct
ggtacaaatg 17820

ctagctaact acaacattgg ctaccagggc ttctatatcc cagagagcta
caaggaccgc 17880

atgtactcct tctttagaaa ctccagccc atgagccgtc aggtggtgga
tgatactaaa 17940

tacaaggact accaacaggt gggcatccta caccaacaca acaactctgg
atttgttggc 18000

taccttgccc ccaccatgcg cgaaggacag gcctaccctg ctaacttccc
ctatccgctt 18060

ataggcaaga ccgcagttga cagcattacc cagaaaaagt ttctttgcga

sequence listing US1 Amended GL 17OCT04.txt

tcgcaccctt 18120

tggcgcaccc cttctccag taactttatg tccatgggcg cactcacaga
cctgggcca 18180

aacctttctt acgccaactc cgcccacgcg ctagacatga cttttgaggt
ggatcccatg 18240

gacgagccca cccttcttta tgttttggtt gaagtctttg acgtgggtccg
tgtgcaccgg 18300

ccgcaccgcg gcgtcatcga aaccgtgtac ctgcgcacgc ctttctcggc
cggcaacgcc 18360

acaacataaa gaagcaagca acatcaacaa cagctgccgc catgggctcc
agtgagcagg 18420

aactgaaagc cattgtcaaa gatcttggtt gtgggccata tttttgggc
acctatgaca 18480

agcgctttcc aggctttggt tctccacaca agctcgctg cgccatagtc
aatacggccg 18540

gtcgcgagac tgggggcgta cactggatgg cttttgcctg gaaccgcac
tcaaaaacat 18600

gctacctctt tgagcccttt ggcttttctg accagcgact caagcaggtt
taccagtttg 18660

agtacgagtc actcctgcgc cgtagcgcca ttgcttcttc ccccgaccgc
tgtataacgc 18720

tggaaaagtc cacccaaagc gtacaggggc ccaactcggc cgcctgtgga
ctattctgct 18780

gcatgtttct ccacgccttt gccaaactggc cccaaactcc catggatcac
aaccaccca 18840

tgaaccttat taccgggta cccaactcca tgctcaacag tccccaggta
cagcccaccc 18900

sequence listing US1 Amended GL 17OCT04.txt

tgcgtcgcaa	ccaggaacag	ctctacagct	tcctggagcg	ccactcgccc
tacttccgca	18960			
gccacagtgc	gcagattagg	agcgccactt	ctttttgtca	cttgaaaaac
atgtaaaaat	19020			
aatgtactag	agacactttc	aataaaggca	aatgctttta	ttgtacact
ctcgggtgat	19080			
tatttacccc	cacccttgcc	gtctgcgccg	tttaaaaatc	aaaggggttc
tgccgcgcac	19140			
cgctatgcgc	cactggcagg	gacacgttgc	gatactggtg	tttagtgctc
cacttaaact	19200			
caggcacaac	catccgcggc	agctcgggtga	agttttcact	ccacaggctg
cgcaccatca	19260			
ccaacgcgtt	tagcaggtcg	ggcgccgata	tcttgaagtc	gcagttgggg
cctccgccct	19320			
gcgcgcgcga	gttgcgatac	acagggttgc	agcactggaa	cactatcagc
gccgggtggt	19380			
gcacgctggc	cagcacgctc	ttgtcggaga	tcagatccgc	gtccagggtc
tccgcgttgc	19440			
tcaggggcga	cggagtcaac	tttggtagct	gccttcccaa	aaagggcgcg
tgcccaggct	19500			
ttgagttgca	ctcgcaccgt	agtggcatca	aaaggtgacc	gtgcccggtc
tgggcgttag	19560			
gatacagcgc	ctgcataaaa	gccttgatct	gcttaaaagc	cacctgagcc
tttgcgcctt	19620			
cagagaagaa	catgccgcaa	gacttgccgg	aaaactgatt	ggccggacag
gccgcgtcgt	19680			
gcacgcagca	ccttgcgtcg	gtgttgagga	tctgcaccac	atttcggccc
caccggttct	19740			

sequence listing US1 Amended GL 17OCT04.txt

tcacgatctt ggccttgcta gactgctcct tcagcgcgcg ctgcccgttt
tcgctcgtca 19800

catccatttc aatcacgtgc tccttattta tcataatgct tccgtgtaga
cacttaagct 19860

cgcccttcgat ctcagcgcag cgggtgcagcc acaacgcgca gcccgtgggc
tcgtgatgct 19920

tgtaggtcac ctctgcaaac gactgcaggt acgcctgcag gaatcgcccc
atcatcgtca 19980

caaaggtctt gttgctggtg aagggtcagct gcaacccgcg gtgctcctcg
ttcagccagg 20040

tcttgcatatc ggccgccaga gcttccactt ggtcaggcag tagtttgaag
ttcgccttta 20100

gatcgttatc cacgtggtac ttgtccatca gcgcgcgcgc agcctccatg
cccttctccc 20160

acgcagacac gatcggcaca ctcagcgggt tcatcacctg aatttcactt
tccgcttcgc 20220

tgggctcttc ctcttctctt tgcgtccgca taccacgcgc cactgggtcg
tcttcattca 20280

gccgccgcac tgtgcgctta cctcctttgc catgcttgat tagcaccggt
gggttgctga 20340

aaccacccat ttgtagcgcc acatcttctc tttcttctc gctgtccacg
attacctctg 20400

gtgatggcgg gcgctcgggc ttgggagaag ggcgcttctt tttcttcttg
ggcgcaatgg 20460

ccaaatccgc cgccgaggtc gatggccgcg ggctgggtgt gcgcggcacc
agcgcgtctt 20520

gtgatgagtc ttcctcgtcc tcggactcga tacgccgcct catccgcttt

sequence listing US1 Amended GL 17OCT04.txt

tttgggggcg 20580

cccggggagg cggcggcgac ggggacgggg acgacacgtc ctccatggtt
gggggacgtc 20640

gcgcgcgacc gcgtccgcgc tcgggggtgg tticgcgctg ctctctttcc
cgactggcca 20700

tttctttctc ctataggcag aaaaagatca tggagtcagt cgagaagaag
gacagcctaa 20760

ccgccccctc tgagttcgcc accaccgcct ccaccgatgc cgccaacgcg
cctaccacct 20820

tccccgtcga ggcacccccg cttgaggagg aggaagtgat tatcgagcag
gacccagggt 20880

ttgtaagcga agatgacgag gaccgctcag taccaacaga ggataaaaag
caagaccagg 20940

acaacgcaga ggcaaacgag gaacaagtcg ggcgggggga cgaaaggcat
ggcgactacc 21000

tagatgtggg agacgacgtg ctgttgaagc atctgcagcg ccagtgcgcc
attatctgcg 21060

acgcgttgca agagcgcagc gatgtgcccc tcgccatagc ggatgtcagc
cttgcctacg 21120

aacgccacct attctcaccg cgcgtacccc ccaaacgcca agaaaaaggc
acatgcgagc 21180

ccaacccgcg cctcaacttc taccctgtat ttgccgtgcc agagggtgctt
gccacctatc 21240

acatcttttt ccaaaactgc aagatacccc taccctgccc tgccaaccgc
agccgagcgg 21300

acaagcagct ggccttgccg cagggcgctg tcatacctga tatgcctcg
ctcaacgaag 21360

sequence listing US1 Amended GL 17OCT04.txt

tgccaaaaat ctttgagggt cttggacgcg acgagaagcg cgcggcaaac
gctctgcaac 21420

aggaaaacag cgaaaatgaa agtcactctg gagtgttggt ggaactcgag
ggtgacaacg 21480

cgcgcctagc cgtactaaaa cgcagcatcg aggtcaccca ctttgcctac
ccggcactta 21540

acctacccc caaggtcatg agcacagtca tgagtgagct gatcgtgcgc
cgtgcgcagc 21600

ccctggagag ggatgcaaat ttgcaagaac aaacagagga gggcctaccc
gcagtggcg 21660

acgagcagct agcgcgctgg cttcaaacgc gcgagcctgc cgacttggag
gagcgacgca 21720

aactaatgat ggccgcagtg ctcgttaccg tggagcttga gtgcatgcag
cggttctttg 21780

ctgaccgga gatgcagcgc aagctagagg aaacattgca ctacaccttt
cgacagggct 21840

acgtacgcca ggcctgcaag atctccaacg tggagctctg caacctggtc
tcctaccttg 21900

gaattttgca cgaaaaccgc cttgggcaaa acgtgcttca ttccacgctc
aaggcgagg 21960

cgcgccgca ctacgtccgc gactgcgttt acttatttct atgctacacc
tggcagacgg 22020

ccatgggcgt ttggcagcag tgcttggagg agtgcaacct caaggagctg
cagaaactgc 22080

taaagcaaaa cttgaaggac ctatggacgg ctttcaacga gcgctccgtg
gccgcgcacc 22140

tggcgacat cattttcccc gaacgcctgc ttaaaaccct gcaacagggt
ctgccagact 22200

sequence listing US1 Amended GL 17OCT04.txt

tcaccagtca aagcatgttg cagaacttta ggaactttat cctagagcgc
tcaggaatct 22260

tgccccccac ctgctgtgca cttcctagcg actttgtgcc cattaagtac
cgcgaatgcc 22320

ctccgccgct ttggggccac tgctaccttc tgcagctagc caactacctt
gcctaccact 22380

ctgacataat ggaagacgtg agcggtgacg gtctactgga gtgtcactgt
cgctgcaacc 22440

tatgcacccc gcaccgctcc ctggtttgca attcgcagct gcttaacgaa
agtcaaatta 22500

tcggtacctt tgagctgcag ggtccctcgc ctgacgaaaa gtccgcggct
ccgggggtga 22560

aactcactcc ggggctgtgg acgtcggctt accttcgcaa atttgtacct
gaggactacc 22620

acgcccacga gattagggtc tacgaagacc aatccccgcc gccaaatgcg
gagcttaccg 22680

cctgcgtcat taccagggc cacattcttg gccaatgca agccatcaac
aaagccccgc 22740

aagagtttct gctacgaaag ggacgggggg tttacttgga cccccagtcc
ggcgaggagc 22800

tcaacccaat cccccgccg ccgcagccct atcagcagca gccgcgggcc
cttgcttccc 22860

aggatggcac caaaaaagaa gctgcagctg ccgccgccac ccacggacga
ggaggaatac 22920

tgggacagtc aggcagagga ggttttggac gaggaggagg aggacatgat
ggaagactgg 22980

gagagcctag acgaggaagc ttccgaggtc gaagaggtgt cagacgaaac

sequence listing US1 Amended GL 17OCT04.txt

accgtcacc 23040

tcggtcgcat tcccctcgcc ggcgccccag aaatcgga cgggttccag
catggctaca 23100

acctccgctc ctcaggcgcc gccggcactg cccgttcgcc gacccaaccg
tagatgggac 23160

accactggaa ccaggggccg taagtccaag cagccgccgc cgttagccca
agagcaacaa 23220

cagcgccaag gctaccgctc atggcgcggg cacaagaacg ccatagtgtc
ttgcttgcaa 23280

gactgtgggg gcaacatctc cttcgccgc cgctttcttc tctaccatca
cggcggtggc 23340

ttccccgta acatcctgca ttactaccgt catctctaca gcccatactg
caccggcggc 23400

agcggcagcg gcagcaacag cagcggccac acagaagcaa aggcgaccgg
atagcaagac 23460

tctgacaaag cccaagaaat ccacagcggc ggcagcagca ggaggaggag
cgctgcgtct 23520

ggcgcccaac gaaccgtat cgaccgcga gcttagaaac aggatttttc
ccactctgta 23580

tgctatattt caacagagca ggggccaaga acaagagctg aaaataaaaa
acaggtctct 23640

gcgatccctc acccgagct gcctgtatca caaaagcgaa gatcagcttc
ggcgcacgct 23700

ggaagacgcg gaggctctct tcagtaaata ctgcgcgctg actcttaagg
actagtttcg 23760

cgccctttct caaatttaag cgcgaaaact acgtcatctc cagcgccac
accggcgcc 23820

sequence listing US1 Amended GL 17OCT04.txt

agcacctgtc gtcagcgcca ttatgagcaa ggaaattccc acgccctaca
tgtggagtta 23880

ccagccacaa atgggacttg cggctggagc tgcccaagac tactcaaccc
gaataaacta 23940

catgagcgcg ggacccaca tgatatcccg ggtcaacgga atccgcgccc
accgaaaccg 24000

aattctcttg gaacaggcgg ctattaccac cacacctcgt aataacctta
atccccgtag 24060

ttggcccgtc gccctgggtg accaggaaag tcccgtccc accactgtgg
tacttcccag 24120

agacgcccag gccgaagttc agatgactaa ctcaagggcg cagcttgccg
gcggctttcg 24180

tcacagggtg cggtcgcccg ggcaggggat aactcacctg acaatcagag
ggcgagggat 24240

tcagctcaac gacgagtcgg tgagctctc gcttggctc cgtccggacg
ggacatttca 24300

gatcggcggc gccggccgtc cttcattcac gcctcgtcag gcaatcctaa
ctctgcagac 24360

ctcgtcctct gagccgcgct ctggaggcat tggaactctg caatttattg
aggagtttgt 24420

gccatcggtc tactttaacc ctttctcggg acctcccggc cactatccgg
atcaatttat 24480

tcctaacttt gacgcggtaa aggactcggc ggacggctac gactgaatgt
taagtggaga 24540

ggcagagcaa ctgcgcctga aacacctggt ccactgtcgc cgccacaagt
gctttgcccg 24600

cgactccggt gaggtttgct actttgaatt gcccgaggat catatcgagg
gcccggcgca 24660

sequence listing US1 Amended GL 17OCT04.txt

cggcgtccgg cttaccgccc agggagagct tgcccgtagc ctgattcggg
 agtttaccca 24720
 gcgccccctg ctagttgagc gggacagggg accctgtgtt ctcactgtga
 ttgcaactg 24780
 tcctaacctt ggattacatc aagatctttg ttgccatctc tgtgctgagt
 ataataaata 24840
 cagaaattaa aatatactgg ggctcctatc gccatcctgt aaacgccacc
 gtcttcaccc 24900
 gcccaagcaa accaaggcga accttacctg gtacttttaa catctctccc
 tctgtgattt 24960
 acaacagttt caaccagac ggagtgagtc tacgagagaa cctctccgag
 ctgagctact 25020
 ccatacagaaa aaacaccacc ctctttacct gccgggaacg tacgagtgcg
 tcaccggccg 25080
 ctgcaccaca cctaccgcct gaccgtaaac cagacttttt ccggacagac
 ctcaataact 25140
 ctgtttacca gaacaggagg tgagcttaga aaacccttag ggtattaggc
 caaaggcgca 25200
 gctactgtgg ggtttatgaa caattcaagc aactctacgg gctattctaa
 ttcagggtttc 25260
 tctaatacggg gttgggggta ttctctgtct tgtgattctc tttattctta
 tactaacgct 25320
 tctctgccta aggctcgccg cctgctgtgt gcacatttgc atttattgtc
 agctttttaa 25380
 acgctggggg cgccaccaa gatgattagg tacataatcc taggtttact
 cacccttgcg 25440
 tcagcccacg gtaccaccca aaagggtggat tttaaggagc cagcctgtaa

sequence listing US1 Amended GL 17OCT04.txt

tggttacattc 25500

gcagctgaag ctaatgagtg caccactctt ataaaatgca ccacagaaca
tgaaaagctg 25560

cttattcgcc acaaaaacaa aattggcaag tatgctgttt atgctatttg
gcagccaggt 25620

gacactacag agtataatgt tacagttttc cagggtaaaa gtcataaaac
ttttatgtat 25680

acttttccat tttatgaaat gtgcgacatt accatgtaca tgagcaaaca
gtataagttg 25740

tggcccccac aaaattgtgt ggaaaacact ggcactttct gctgcactgc
tatgctaatt 25800

acagtgtctg ctttggctctg taccctactc tatattaaat acaaaagcag
acgcagcttt 25860

attgaggaaa agaaaatgcc ttaatttact aagttacaaa gctaattgtca
ccactaactg 25920

ctttactcgc tgcttgcaaa acaaattcaa aaagttagca ttataattag
aataggattt 25980

aaaccccccg gtcatttcct gctcaatacc attcccctga acaattgact
ctatgtggga 26040

tatgctccag cgctacaacc ttgaagtcag gcttcctgga tgtcagcatc
tgactttggc 26100

cagcacctgt cccgcggatt tgttcagtc caactacagc gaccaccct
aacagagatg 26160

accaacacaa ccaacgcggc cgccgctacc ggacttacat ctaccacaaa
tacaccccaa 26220

gtttctgcct ttgtcaataa ctgggataac ttgggcatgt ggtggttctc
catagcgctt 26280

sequence listing US1 Amended GL 17OCT04.txt

atgtttgtat gccttattat tatgtggctc atctgctgcc taaagcgcaa
acgcgcccga 26340

ccacccatct atagtcccat cattgtgcta cacccaaaca atgatggaat
ccatagattg 26400

gacggactga aacacatggt cttttctctt acagtatgat taaatgagac
atgattcctc 26460

gagtttttat attactgacc cttgttgccg ttttttgtgc gtgctccaca
ttggctgcgg 26520

tttctcacat cgaagtagac tgcattccag ccttcacagt ctatttgctt
tacggatttg 26580

tcaccctcac gctcatctgc agcctcatca ctgtgggtcat cgcctttatc
cagtgcattg 26640

actgggtctg tgtgcgcttt gcatactca gacaccatcc ccagtacagg
gacaggacta 26700

tagctgagct tcttagaaat ggacggaatt attacagagc agcgctgct
agaaagacgc 26760

agggcagcgg ccgagcaaca gcgcatgaat caagagctcc aagacatggt
taacttgac 26820

cagtgcacaa ggggtatctt ttgtctggta aagcaggcca aagtcaccta
cgacagtaat 26880

accaccggac accgccttag ctacaagttg ccaaccaagc gtcagaaatt
ggtggcatg 26940

gtgggagaaa agccattac cataactcag cactcggtag aaaccgaagg
ctgcattcac 27000

tcaccttgtc aaggacctga ggatctctgc acccttatta agaccctgtg
cggctcaca 27060

gatcttattc cctttaacta ataaaaaaaa ataataaagc atcacttact
taaaatcagt 27120

sequence listing US1 Amended GL 17OCT04.txt

tagcaaattt ctgtccagtt tattcagcag cacctccttg ccctcctccc
agctctggta 27180

ttgcagcttc ctcttggtg caaactttct ccacaatcta aatggaatgt
cagtttcctc 27240

ctgttcctgt ccattccgcac ccactatctt catgttggtg cagatgaagc
gcgcaagacc 27300

gtctgaagat accttcaacc ccgtgtatcc atatgacacg gaaaccggtc
ctccaactgt 27360

gccttttctt actcctccct ttgtatcccc caatgggttt caagagagtc
cccctggggt 27420

actctctttg cgcctatccg aacctctagt tacctccaat ggcatgcttg
cgtcaaaaat 27480

gggcaacggc ctctctctgg acgaggccgg caaccttacc tcccaaaatg
taaccactgt 27540

gagcccacct ctcaaaaaaa ccaagtcaaa cataaacctg gaaatatctg
caccctcac 27600

agttacctca gaagccctaa ctgtggctgc cgccgcacct ctaatggctg
cgggcaacac 27660

actcaccatg caatcacagg ccccgctaac cgtgcacgac tccaaactta
gcattgccac 27720

ccaaggaccc ctcacagtgt cagaaggaaa gctagccctg caaacatcag
gccccctcac 27780

caccaccgat agcagtaccc ttactatcac tgcctcacc cctctaacta
ctgccactgg 27840

tagcttgggc attgacttga aagagcccat ttatacaca aatggaaaac
taggactaaa 27900

gtacgggggt cctttgcatg taacagacga cctaaacact ttgaccgtag

sequence listing US1 Amended GL 17OCT04.txt

caactggtcc 27960

agggtgtgact attaataata cttccttgca aactaaagtt actggagcct
tgggttttga 28020

ttcacaaggc aatatgcaac ttaatgtagc aggaggacta aggattgatt
ctcaaaacag 28080

acgccttata cttgatgtta gttatccgtt tgatgctcaa aaccaactaa
atctaagact 28140

aggacagggc cctcttttta taaactcagc ccacaacttg gatattaact
acaacaaagg 28200

cctttacttg tttacagctt caaacaattc caaaaagctt gaggttaacc
taagcactgc 28260

caaggggttg atgtttgacg ctacagccat agccattaat gcaggagatg
ggcttgaatt 28320

tggttcacct aatgcaccaa acacaaatcc cctcaaaaaca aaaattggcc
atggcctaga 28380

atttgattca aacaaggcta tggttcctaa actaggaact ggccttagtt
ttgacagcac 28440

aggtgccatt acagtaggaa acaaaaataa tgataagcta actttgtgga
ccacaccagc 28500

tccatctcct aactgtagac taaatgcaga gaaagatgct aaactcactt
tggctttaac 28560

aaaatgtggc agtcaaatac ttgctacagt ttcagttttg gctgttaaag
gcagtttggc 28620

tccaatatct ggaacagttc aaagtgtcga tcttattata agatttgacg
aaaatggagt 28680

gctactaaac aattccttcc tggaccacaga atattggaac tttagaaatg
gagatcttac 28740

sequence listing US1 Amended GL 17OCT04.txt

tgaaggcaca gcctatacaa acgctgttgg atttatgcct aacctatcag
cttatccaaa 28800

atctcacggt aaaactgcca aaagtaacat tgtcagtcaa gtttacttaa
acggagacaa 28860

aactaaacct gtaacactaa ccattacact aaacgggtaca caggaaacag
gagacacaac 28920

tccaagtgca tactctatgt ctttttcatg ggactgggtct ggccacaact
acattaatga 28980

aatatttggc acatcctctt acactttttc atacattgcc caagaataaa
gaatcgttg 29040

tgttatgttt caacgtgttt atttttcaat tgcagaaaat ttcaagtc
ttttcattca 29100

gtagtatagc cccaccacca catagcttat acagatcacc gtacctta
caaactcaca 29160

gaaccctagt attcaacctg ccacctcct cccaacacac agagtacaca
gtcctttctc 29220

cccggctggc cttaaaaagc atcatatcat gggtaacaga catattctta
ggtgttatat 29280

tccacacggt ttcctgtcga gccaaacgct catcagtgat attaataaac
tccccgggca 29340

gctcacttaa gttcatgtcg ctgtccagct gctgagccac aggctgctgt
ccaacttgcg 29400

gttgcttaac gggcggcgaa ggagaagtcc acgcctacat gggggtagag
tcataatcgt 29460

gcatcaggat agggcggtgg tgctgcagca gcgcgcgaat aaactgctgc
cgccgccgct 29520

ccgtcctgca ggaatacaac atggcagtggt tctcctcagc gatgattcgc
accgcccgca 29580

sequence listing US1 Amended GL 17OCT04.txt

gcataaggcg ccttgcctc cgggcacagc agcgaccct gatctcactt
aatcagcac 29640

agtaactgca gcacagcacc acaatattgt tcaaatccc acagtgaag
gcgctgtatc 29700

caaagctcat ggcggggacc acagaacca cgtggccatc ataccacaag
cgaggtaga 29760

ttaagtggcg acccctcata aacacgtgg acataaacat tacctctttt
ggcatgttgt 29820

aattcaccac ctcccgttac catataaacc tctgattaaa catggcgcca
tccaccacca 29880

tcctaaacca gctggccaaa acctgcccgc cggctataca ctgcagggaa
ccgggactgg 29940

aacaatgaca gtggagagcc caggactcgt aaccatggat catcatgctc
gtcatgatat 30000

caatgttggc acaacacagg cacacgtgca tacacttcct caggattaca
agtcctccc 30060

gcgttagaac catatcccag ggaacaacc attcctgaat cagcgtaaat
cccacactgc 30120

agggagagacc tcgcacgtaa ctcacgttgt gcattgtcaa agtgttacat
tcgggcagca 30180

gcggatgata ctccagtatg gtagcgcggt tttctgtctc aaaaggaggt
agacgatccc 30240

tactgtacgg agtgcgcccga gacaaccgag atcgtgttgg tcgtagtgtc
atgccaaatg 30300

gaacgccgga cgtagtata tttcctgaag caaaaccagg tgcgggcgtg
acaaacagat 30360

ctgcgtctcc ggtctcgccg cttagatcgc tctgtgtagt agttgtagta

sequence listing US1 Amended GL 17OCT04.txt
tatccactct 30420

ctcaaagcat ccaggcgccc cctggcttcg ggttctatgt aaactccttc
atgcgccgct 30480

gccctgataa catccaccac cgcagaataa gccacacca gccaacctac
acattcggtc 30540

tgcgagtcac acacgggagg agcgggaaga gctggaagaa ccatgttttt
ttttttattc 30600

caaaagatta tccaaaacct caaaatgaag atctattaag tgaacgcgct
cccctccggt 30660

ggcgtgggtca aactctacag ccaaagaaca gataatggca tttgtaagat
gttgacacaat 30720

ggcttccaaa aggcaaacgg ccttcacgtc caagtggacg taaaggctaa
acccttcagg 30780

gtgaatctcc tctataaaca ttccagcacc ttcaaccatg cccaaataat
tctcatctcg 30840

ccaccttctc aatatatctc taagcaaadc ccgaatatta agtccggcca
ttgtaaaaat 30900

ctgctccaga gcgcccctcca ccttcagcct caagcagcga atcatgattg
caaaaattca 30960

ggttcctcac agacctgtat aagattcaaa agcgggaacat taacaaaaat
accgcgatcc 31020

cgtagggtccc ttcgcagggc cagctgaaca taatcgtgca ggtctgcacg
gaccagcgcg 31080

gccacttccc cgccaggaac cttgacaaaa gaaccacacac tgattatgac
acgcatactc 31140

ggagctatgc taaccagcgt agccccgatg taagctttgt tgcattggcg
gcgatataaa 31200

sequence listing US1 Amended GL 17OCT04.txt

atgcaagggtg	ctgctcaaaa	aatcaggcaa	agcctcgcgc	aaaaaagaaa
gcacatcgta	31260			
gtcatgctca	tgcagataaa	ggcaggtaag	ctccggaacc	accacagaaa
aagacaccat	31320			
ttttctctca	aacatgtctg	cgggtttctg	cataaacaca	aaataaaata
acaaaaaac	31380			
atttaaacad	tagaagcctg	tcttacaaca	ggaaaaacaa	cccttataag
cataagacgg	31440			
actacggcca	tgccggcggtg	accgtaaaaa	aactgggtcac	cggtattaaa
aagcaccacc	31500			
gacagctcct	cgggtcatgtc	cggagtcata	atgtaagact	cggtaaacac
atcagggttg	31560			
ttcatcggtc	agtgtctaaaa	agcgaccgaa	atagcccggg	ggaatacata
cccgcaggcg	31620			
tagagacaac	attacagccc	ccataggagg	tataacaaaa	ttaataggag
agaaaaacac	31680			
ataaacacct	gaaaaaccct	cctgcctagg	caaaatagca	ccctcccgt
ccagaacaac	31740			
atacagcgct	tcacagcggc	agcctaacag	tcagccttac	cagtaaaaaa
gaaaacctat	31800			
taaaaaaaca	ccactcgaca	cggcaccagc	tcaatcagtc	acagtgtaaa
aaagggccaa	31860			
gtgcagagcg	agtatatata	ggactaaaaa	atgacgtaac	ggttaaagtc
cacaaaaaac	31920			
acccagaaaa	ccgcacgcga	acctacgccc	agaaacgaaa	gccaaaaaac
ccacaacttc	31980			
ctcaaatcgt	cacttccgtt	ttcccacgtt	acgtaacttc	ccattttaag
aaaactacaa	32040			

sequence listing US1 Amended GL 17OCT04.txt

ttcccaacac atacaagtta ctccgcccta aaacctacgt caccgcgcc
gttcccacgc 32100

ccgcgccac gtcacaaact ccaccccctc attatcatat tggcttcaat
ccaaaataag 32160

gtatat
32166

<210> 7
<211> 489
<212> PRT
<213> RAT

<400> 7

Met	Ser	Gly	Glu	Met	Asp	Lys	Pro	Leu	Ile	Ser	Arg	Arg
Leu	Val	Asp										
1			5						10			
15												

Ser	Asp	Gly	Ser	Leu	Ala	Glu	Val	Pro	Lys	Glu	Ala	Pro
Lys	Val	Gly										
			20					25				30

Ile	Leu	Gly	Ser	Gly	Asp	Phe	Ala	Arg	Ser	Leu	Ala	Thr
Arg	Leu	Val										
			35					40				45

Gly	Ser	Gly	Phe	Phe	Val	Val	Val	Gly	Ser	Arg	Asn	Pro
Lys	Arg	Thr										
			50					55				60

Ala	Gly	Leu	Phe	Pro	Ser	Leu	Ala	Gln	Val	Thr	Phe	Gln
Glu	Glu	Ala										
65						70					75	

sequence listing US1 Amended GL 17OCT04.txt
80

Val	Ser	Ser	Pro	Glu	Val	Ile	Phe	Val	Ala	Val	Phe	Arg
Glu	His	Tyr										
			85						90			
95												
Ser	Ser	Leu	Cys	Ser	Leu	Ala	Asp	Gln	Leu	Ala	Gly	Lys
Ile	Leu	Val										
			100						105			
110												
Asp	Val	Ser	Asn	Pro	Thr	Glu	Lys	Glu	Arg	Leu	Gln	His
Arg	Gln	Ser										
		115						120				125
Asn	Ala	Glu	Tyr	Leu	Ala	Ser	Leu	Phe	Pro	Ala	Cys	Thr
Val	Val	Lys										
		130						135				140
Ala	Phe	Asn	Val	Ile	Ser	Ala	Trp	Ala	Leu	Gln	Ala	Gly
Pro	Arg	Asp										
145						150					155	
			160									
Gly	Asn	Arg	Gln	Val	Leu	Ile	Cys	Gly	Asp	Gln	Leu	Glu
Ala	Lys	His										
			165							170		
175												
Thr	Val	Ser	Glu	Met	Ala	Arg	Ala	Met	Gly	Phe	Thr	Pro
Leu	Asp	Met										
			180							185		
190												
Gly	Ser	Leu	Ala	Ser	Ala	Arg	Glu	Val	Glu	Ala	Ile	Pro
Leu	Arg	Leu										
		195						200				205

sequence listing US1 Amended GL 17OCT04.txt

Leu Pro Ser Trp Lys Val Pro Thr Leu Ile Ala Leu Gly
 Leu Ser Thr
 210 215 220

Gln Ser Tyr Ala Tyr Asn Phe Ile Arg Asp Val Leu Gln
 Pro Tyr Thr
 225 230 235
 240

Arg Lys Asp Glu Asn Lys Phe Tyr Lys Met Pro Leu Ser
 Val Val Asn
 245 250
 255

Thr Thr Ile Pro Cys Val Ala Tyr Val Leu Leu Ser Leu
 Val Tyr Leu
 260 265
 270

Pro Gly Val Leu Ala Ala Ala Leu Gln Leu Arg Arg Gly
 Thr Lys Tyr
 275 280 285

Gln Arg Phe Pro Asp Trp Leu Asp His Trp Leu Gln His
 Arg Lys Gln
 290 295 300

Ile Gly Leu Leu Ser Phe Phe Phe Ala Met Leu His Ala
 Leu Tyr Ser
 305 310 315
 320

Phe Cys Leu Pro Leu Arg Arg Ser His Arg Tyr Asp Leu
 Val Asn Leu
 325 330
 335

```

sequence listing US1 Amended GL 17OCT04.txt
Ala Val Lys Gln Val Leu Ala Asn Lys Ser Arg Leu Trp
Val Glu Glu
340 345
350
Glu Val Trp Arg Met Glu Ile Tyr Leu Ser Leu Gly Val
Leu Ala Leu
355 360 365
Gly Met Leu Ser Leu Leu Ala Val Thr Ser Ile Pro Ser
Ile Ala Asn
370 375 380
Ser Leu Asn Trp Lys Glu Phe Ser Phe Val Gln Ser Thr
Leu Gly Phe
385 390 395
400
Val Ala Leu Met Leu Ser Thr Met His Thr Leu Thr Tyr
Gly Trp Thr
405 410
415
Arg Ala Phe Glu Glu Asn His Tyr Lys Phe Tyr Leu Pro
Pro Thr Phe
420 425
430
Thr Leu Thr Leu Leu Leu Pro Cys Val Ile Ile Leu Ala
Lys Gly Leu
435 440 445
Phe Leu Leu Pro Cys Leu Ser His Arg Leu Thr Lys Ile
Arg Arg Gly
450 455 460
Trp Glu Arg Asp Gly Ala Val Lys Phe Met Leu Pro Ala

```

sequence listing US1 Amended GL 17OCT04.txt
Gly His Thr
465 480 470 475
Gln Gly Glu-Lys Thr Ser His Val Glx
485